

AMENDMENTS TO THE CLAIMS:

Kindly amend claims 1-4, 6-10 and 12-20, and add new claims 21-53 as follows.

The present listing of claims replaces all prior versions, and listings, of claims in the instant application.

Listing of Claims:

1. (Currently amended) A ~~modular~~-multifunction field-deployable apparatus comprising:

a ring support element, said ring support element comprising at least one substantially tubular and inflatable ring, said ring support element defining a vacant center;

at least one inflation means for inflating said ring support element;

at least two pressure-deformable membranes extending across the vacant center of said ring support element, said membranes and said ring support element defining at least one inflatable reflector chamber, at least one of said membranes ~~having a means for reflecting~~ is reflective to electromagnetic radiation; and

at least one pressure adjusting or inflating means for adjusting the pressure within or inflating said reflector chamber.

2. (Currently amended) The apparatus according to claim 1, wherein said ring support element and said membranes ~~comprise~~ are made from substantially thin, ~~strong~~, and flexible sheets ~~of comprising~~ at least one type or class of substantially polymeric materials,

whereby said apparatus is ~~suitably lightweight, compactly foldable, and sufficiently durable for ease of transport to and substantially safe and dependable use in a range of~~

~~terrestrial and non-terrestrial environments.~~

3. (Currently amended) The apparatus according to claim 1, wherein said inflation means and said pressure adjusting means ~~are~~ include at least one valve comprising a flexible conduit closed by a closure means selected from the group consisting of:

- an affixed ~~flexible~~-plug;
- a flexible tongue-and-groove ~~or Ziploc-type~~-valve;
- a self-sealing membrane valve;
- a clamp; and
- a tie.

4. (Currently amended) The apparatus according to claim 1, further comprising at least one accessory device attached to said apparatus, the accessory device being selected from the group consisting of:

- a handle;
- an apertured tab ~~for hanging when in storage~~;
- a tying or hanging strap;
- a storage pouch for storing the deflated and folded apparatus; and
- a pouch for filling with ~~dense~~-material to stabilize the apparatus.

5. (Original) The apparatus according to claim 1, further comprising at least one fastener device attached to said apparatus, the fastener device being selected from the group consisting of:

- a clevis;
- a clip;

a bracket;
a mounting stud;
a socket;
a line; and
a hook-and-loop fastening patch.

6. (Currently amended) The apparatus according to claim 1, wherein the plurality of pressure-deformable membranes ~~are~~ comprise at least two reflective membranes including a primary reflective membrane and at least one redundant or auxiliary reflective membrane, ~~wherein each of said reflective membranes has predetermined functional characteristics, whereby said reflective membranes may have optionally identical or dissimilar functional characteristics.~~

7. (Currently amended) The apparatus according to claim 1, further comprising at least one access port having a fluid-tight cover, ~~whereby materials and equipment may be added to and removed from the apparatus.~~

8. (Currently amended) The apparatus according to claim 1, wherein at least one of said pressure-deformable membranes has at least one ~~outlet~~ duct or port, whereby disposed to transfer substantially fluidic materials ~~can be transferred~~ to, from, or through at least one said reflector chamber.

9. (Currently amended) The apparatus according to claim 8, wherein said port has a conduit, extending through said reflector chamber, ~~whereby~~ disposed to drain

substantially fluidic materials collecting on the top of the apparatus ~~are drained through~~ said conduit to an external location substantially below said reflector chamber.

10. (Currently amended) The apparatus according to claim 1, wherein said ring support element comprises at least two of said substantially inflatable and tubular rings, at least one of said rings ~~is being~~ attached to extend ~~and above~~ at least one other of said rings ~~substantially above and~~ said pressure-deformable membranes;

~~whereby the external volume capacity of the apparatus is increased and an inflatable focal point support element is provided.~~

11. (Original) The apparatus according to claim 1, wherein said ring support element comprises at least two of said substantially inflatable and tubular rings, at least two of said rings being located between at least two of said pressure-deformable membranes, whereby the internal volume capacity of the apparatus is increased.

12. (Currently amended) The apparatus according to claim 1, further including at least one gutter attached to said ~~ring support element~~ apparatus for capturing ~~falling~~ materials, whereby the effective capture area is increased.

13. (Currently amended) The apparatus according to claim 1, further comprising at least one ~~stretched~~ elastic band attached to at least one surface of at least one of said pressure-deformable membranes to cause wrinkling as a safety means.

14. (Currently amended) The apparatus according to claim 1, further including at least one cover attached to at least one point of said apparatus as a safety means, said cover being ~~rollable into a retracted position~~retractable.

15. (Currently amended) A ~~modular~~—field-deployable apparatus substantially ~~optimized~~for use as a radiant electromagnetic energy concentrating, focusing or~~and~~ beaming apparatus comprising:

a ring support element, said ring support element comprising at least one substantially tubular and inflatable ring, said ring support element defining a vacant center;

at least one inflation means for inflating said ring support element;

at least two pressure-deformable membranes extending across the vacant center of said ring support element, said membranes and said ring support element defining at least one inflatable reflector chamber, at least one of said membranes ~~having a means for reflecting~~is reflective to electromagnetic radiation; and

at least one pressure adjusting or inflation means for adjusting the pressure within or inflating said reflector chamber;

at least one means for performing at least one function not involving concentrating, focusing, and beaming radiant electromagnetic energy, said performing means is selected from the group consisting of:

a means for collecting fluid;

a means for storing fluid;

a means for distributing fluid;

a means for processing fluid;

a means for fermenting materials;

a means for storing material;

- a means for providing waterborne flotation;
- a means for providing snowborne transportation;
- a means for providing a compliant support;
- a means for immobilizing a broken limb;
- a means for concentrating sound;
- a means for providing electrostatic insulation;
- a means for providing thermal insulation; and
- a means for providing electromagnetic insulation;

~~whereby the apparatus also provides at least one non-electromagnetic or non-focused electromagnetic function.~~

16. (Currently amended) A method of establishing at least one function or element of life-sustaining infrastructure utilizing a ~~modular~~ field-deployable apparatus comprising the steps of:

- providing a ring support element, said ring support element comprising at least one substantially tubular and inflatable ring, said ring support element defining a vacant center;
- providing at least one inflation means for inflating said ring support element;
- providing at least two pressure-deformable membranes extending across the vacant center of said ring support element, said membranes and said ring support element defining at least one inflatable reflector chamber, at least one of said pressure-deformable membranes being reflective to electromagnetic radiation;
- providing at least one pressure adjusting or inflation means for adjusting the pressure within or inflating said reflector chamber; and

deploying said ring support element and said pressure-deformable membranes in a manner effective for performing a selected function.

17. (Currently amended) The method according to claim 16, wherein the deploying step comprises the following steps:

inflating said ring support element to support and tension ~~a~~the periphery of said pressure-deformable membranes;

adjusting pressure within said reflector chamber to deform at least one reflective membrane into a functional concave reflector; and

positioning the reflective membrane in a manner effective for allowing transmission of radiant electromagnetic energy between a source and target,

whereby said apparatus is operable to concentrate radiant electromagnetic energy emitted from an electromagnetic source onto an energy-absorbing object placed in proximity to the a focal point defined by said apparatus~~can absorb concentrated radiant electromagnetic energy for at least one application selected from cooking, heating, and processing of materials, electrical power generation, receiving electromagnetic communications or signals, and providing illumination, and~~

~~whereby an energy-emitting object placed in proximity to the a focal point can project radiant electromagnetic energy for at least one application selected from transmitting electromagnetic communications or signals, and providing illumination.~~

18. (Currently amended) The method according to claim 16, wherein the deploying step comprises the following steps:

inflating said ring support element to support and tension ~~a~~the periphery of said pressure-deformable membranes;

adjusting pressure within said reflector chamber to deform at least one membrane into
a substantially concave surface; and
positioning said apparatus in a substantially horizontal orientation with the
substantially concave surface facing upward,
whereby said apparatus ~~can~~is operable to capture and/or hold, or to capture and hold,
substantially fluidic materials ~~including, for example, precipitation, leaking fluids, draining~~
~~fluids, and/or moderately-sized solid materials,~~ and
whereby said apparatus ~~can~~is operable to support persons or objects at least one item
on land and on water.

19. (Currently amended) The method according to claim 16, wherein the
deploying step comprises the following step:

positioning said apparatus between an ~~element~~item and the surrounding environment
to shield or insulate said ~~element~~item from said environment,
whereby said apparatus ~~can~~is operable to provide thermal, electrostatic, and
electromagnetic insulation.

20. (Currently amended) A ~~modular~~ multifunction field-portable apparatus
comprising:

a ring support element, said ring support element comprising at least one substantially
tubular and inflatable ring, said ring support element defining a vacant center;
at least one inflation means for inflating said ring support element;
at least two pressure-deformable membranes extending across the vacant center of
said ring support element, said membranes and said ring support element
defining at least one inflatable central chamber; and

at least one pressure adjusting or inflation means for adjusting the pressure within or
inflating said ~~reflector~~-chamber,

whereby the apparatus is operable to provide~~provides~~ at least one non-electromagnetic function.

21. (NEW) The apparatus as recited in claim 1, further comprising at least one safety shield or safety cage operable to reduce the risk of accidental or unintentional exposure to concentrated electromagnetic radiation.

22. (NEW) The apparatus as recited in claim 1, further comprising at least one safety shield or safety cage disposed to provide a physical barrier at least partially surrounding a focal point defined by said apparatus.

23. (NEW) The apparatus as recited in claim 1, further comprising at least one inflatable safety shield or inflatable safety cage disposed to provide a physical barrier at least partially surrounding a focal point defined by said apparatus.

24. (NEW) The apparatus according to claim 21, wherein the apparatus includes at least one safety shield disposed to provide a physical barrier at least partially surrounding a focal point defined by said apparatus; said safety shield being selected from the group consisting of:

an inflatable safety shield comprising a plurality of stacked inflatable rings;

an inflatable safety shield comprising a plurality of stacked inflatable rings
providing an outer contour effectively defining a predetermined portion of
an effectively spherical surface; and

an inflatable safety shield comprising a plurality of basic reflector apparatuses each having a removable reflector chamber in a removed condition.

25. (NEW) The apparatus according to claim 21, wherein the apparatus includes at least one safety cage disposed to provide a physical barrier at least partially surrounding a focal point defined by said apparatus; said safety cage being selected from the group consisting of:

an inflatable safety cage comprising a plurality of stacked inflatable rings;

an inflatable safety cage comprising a plurality of stacked inflatable rings providing an outer contour effectively defining a predetermined portion of an effectively spherical surface;

an inflatable safety cage comprising an inner membrane, an outer membrane, and a plurality of membranous ribs joined to said inner and outer membranes;

an inflatable safety cage comprising a plurality of connected inflatable tubes;

an inflatable safety cage comprising a plurality of connected inflatable arcuate tubes effectively defining a predetermined portion of an effectively spherical surface;

a collapsible substantially rigid safety cage comprising a plurality of substantially rigid elements rotatably attached to said apparatus and stabilized by one or more attached cords or cable stays;

a globe-shaped combination safety cage and effectively spherical support comprising a plurality of substantially rigid elements rotatably attached to form a collapsible structure and further attached to said ring support element to stabilize the collapsible structure; and

a safety cage comprising a collapsible framework.

26. (NEW) The apparatus according to claim 21, wherein said apparatus includes at least one safety shield comprising a safety net or mesh for providing a physical barrier at least partially surrounding a focal point defined by said apparatus.

27. (NEW) The apparatus according to claim 21, wherein said apparatus includes at least one safety cage comprising a safety net or mesh for providing a physical barrier at least partially surrounding a focal point defined by said apparatus.

28. (NEW) The apparatus as recited in claim 21, wherein said at least one said safety shield or safety cage is removably attached to said apparatus.

29. (NEW) The apparatus as recited in claim 21, wherein the apparatus includes at least one inflatable safety shield removably attached to the apparatus.

30. (NEW) The apparatus as recited in claim 21, wherein the apparatus includes at least one inflatable safety cage removably attached to the apparatus.

31. (NEW) The apparatus as recited in claim 21, wherein at least one said safety shield or safety cage is substantially integral with said apparatus.

32. (NEW) The apparatus as recited in claim 21, wherein at least one said safety shield or safety cage is inflatable and has one or more interconnecting gas ports to the field-deployable apparatus, said interconnecting gas ports being operable to inflate said safety shield or safety cage simultaneously with said apparatus.

33. (NEW) The apparatus as recited in claim 32, wherein at least one said safety shield or safety cage is substantially integral with said apparatus.

34. (NEW) The apparatus as recited in claim 1, further comprising one or more rigid rods attached to said apparatus.

35. (NEW) The apparatus as recited in claim 34, wherein said one or more rigid rods are removably attached to said apparatus.

36. (NEW) The apparatus as recited in claim 1, further comprising a focal point support operable to support one or more items in proximity to a focal point defined by said apparatus.

37. (NEW) The apparatus as recited in claim 36, wherein said focal point support is selected from the group consisting of:

two inflatable pressure vessels disposed to support a rod spanning said apparatus;

an inflatable safety cage disposed to support a rod spanning said apparatus;

an inflatable safety shield or safety cage disposed to support a cable-stayed support;

an inflatable tube stabilized by a plurality of tensioned cable stays; and

an adjustable inflatable truss.

38. (NEW) The apparatus as recited in claim 36, wherein said focal point support comprises a frame supported by a plurality of cable-stays.

39. (NEW) The apparatus as recited in claim 38, wherein said frame is selected from the group consisting of:

- a rigid frame;
- a self-leveling pivoting frame;
- a frame comprising a rotatably attached self-leveling pivoting frame;
- a frame comprising a rotatably attached self-leveling pivoting frame and a device operable to fix or hold the relative positions of said frame;
- a frame with an internally reflective, articulated structure attached to the frame;
- a flexible wire or cable basket;
- a bracket or ring; and
- two brackets or rings attached by an adjustable wire loop.

40. (NEW) The apparatus as recited in claim 38, further comprising a safety shield or safety cage, wherein said cable-stayed focal point support is attached to, and supported by, said safety shield or safety cage.

41. (NEW) The apparatus as recited in claim 1, wherein one or more of said pressure-deformable membranes are removably attached to said ring support element of said apparatus.

42. (NEW) The apparatus as recited in claim 41, wherein one or more of the removably attachable membranes are removably attached to said ring support element of said apparatus using at least one tongue-and-groove fastening mechanism.

43. (NEW) The apparatus as recited in claim 1, wherein said at least one reflector chamber is removably attached to said ring support element of said apparatus.

44. (NEW) The apparatus as recited in claim 1, further comprising one or more elements selected from the group consisting of:

- a support element disposed to support and orient said apparatus;
- an inflatable support element disposed to support and orient said apparatus;
- a safety shield or cage disposed to reduce the risk of accidental or
unintentional exposure to electromagnetic radiation;
- an inflatable safety shield or cage disposed to reduce the risk of accidental or
unintentional exposure to electromagnetic radiation;
- a focal point support disposed to support an item in proximity to a focal point
defined by said apparatus;
- an inflatable focal point support disposed to support an item in proximity to a
focal point defined by said apparatus;
- a cover;
- an inflatable cover; and
- a safety cage including a net or mesh.

45. (NEW) The apparatus as recited in claim 1, wherein said apparatus further comprises a secondary central inflatable pressure envelope disposed within said reflector chamber, wherein the degree of energy concentration provided by the reflective membrane of said apparatus is adjustable by adjusting the pressure within said secondary pressure envelope.

46. (NEW) The apparatus as recited in claim 1, wherein one or more of said pressure-deformable membranes comprise a pre-formed reflective membrane having a supporting cord or cable spanning said ring support element to provide a reflective membrane defining a plurality of focal points.

47. (NEW) The apparatus as recited in claim 1, wherein an external surface of the apparatus has a high-emissivity surface.

48. (NEW) The apparatus as recited in claim 1, wherein an external surface of the apparatus has a camouflaged surface.

49. (NEW) The apparatus as recited in claim 1, wherein said apparatus further comprises a reflective membrane comprising a surface having a non-paraboloid shape.

50. (NEW) The apparatus as recited in claim 1, wherein said apparatus further comprises a reflective membrane comprising a substantially faceted surface.

51. (NEW) The apparatus as recited in claim 1, further comprising one or more light-attenuator devices operable to attenuate light or radiant electromagnetic energy.

52. (NEW) The apparatus as recited in claim 1, further comprising one or more support elements disposed to support and orient said apparatus.

53. (NEW) The apparatus as recited in claim 1, further comprising a support element disposed to support and orient said apparatus and an automated sun-tracking

apparatus.